THE POTATO IN BENGAL, 1873.

THE POTATO IN BENGAL.

No. 62A, dated Fort William, the 24th October 1873.

From—J. GEOGHEGAN, Esq., Offg. Secretary to the Board of Revenue, L.P.,

To—The Secy. to the Government of Bengal, Agricultural Department.

WITH reference to paragraph 3 of Government Order No. 717, dated 16th April last, I am directed to submit herewith, in original, for the perusal of His Honor the Lieutenant-Governor, the reports received from the Commissioners on the subject of the cultivation of potatoes.

HON'BLE V. H. SCHALCH.

1. Burdwan Commissioner's No. 595, dated 20th August 1873.
2. Presidency Commissioner's No. 57R.G., dated 22nd July 1873.
3. Rajshahye Commissioner's No. 63Ct., dated 12th June 1873.
4. Ditto No. 138Ct., dated 16th July 1873.
5. Ditto No. 691, dated 4th August 1873.
6. Ditto No. 770, dated 24th ditto.
7. Cooch Behar Commissioner's No. 2395, dated 23rd July 1873.
8. Dacca Commissioner's No. 354, dated 21st July 1873.
9. Chittagong Commissioner's No. 262, dated 28th August 1873.
10. Patna Commissioner's No. 662R., dated 11th September 1873.
11. Bhagulpore Commissioner's No. 286, dated 11th August 1873.
12. Orissa Commissioner's No. 219, dated 1st July 1873.
13. Chota Nagpore Commissioner's No. 129T., dated 3rd September 1873.
14. Assam Commissioner's No. 70BT., dated 2nd August 1873.

2. It appears from these reports that though the tuber will thrive in the plains, it requires to be continually refreshed by new stock immediately or indirectly derived from the hills. Thus while the Patna district derives its fresh stock from either Nepal or Darjeeling, Bhagulpore gets its stock from Patna. Darjeeling and the Khasi Hills are apparently the source of fresh supplies for potatoes grown for the consumption of Europeans, *e.g.* at Dinapore. The Member-in-Charge understands that the Darjeeling potatoes are not appreciated by the natives, who *prefer* varieties to our palates not so pleasant. It seems to Mr. Schalch that, so far as this root is eaten by natives at all, and so far as it is refreshed from time to time by fresh seed, such seed comes directly or indirectly from Nepal.

3. Perhaps Patna, Bhagulpore, Rungpore, and Hooghly, are the only districts that can be called "potato-districts," in the sense of districts yielding potatoes for *native* consumption.

4. It is to be noted that both at Darjeeling and in the Khasi Hills the local officers seem disposed to doubt the degeneracy of the stock, which is *assumed* in the letter under acknowledgment. From what he has himself learned, Mr. Schalch is, however, inclined to believe that at least as regards Darjeeling the assumption is correct.

5. On the whole the correspondence seems to the Member-in-Charge to shew that there is little call for Government interference or aid, and that the potato, as grown for *native* consumption, does not require any special fostering. As regards Darjeeling, the experiment of introducing new seed might be encouraged.

6. In any case no steps can be taken this season, as October is almost universally declared to be the planting month for the potato crop. In Rajshahye there seems to be a second crop, but it is not of much value.

BURDWAN DIVISION.

No. 595, dated Burdwan, the 20th August 1873.

From—C. T. Buckland, Esq., Commissioner of the Burdwan Division,

To—The Secretary to the Board of Revenue, L.P.

With reference to your No. 385A of the 31st May last, I have the honor to submit the following report regarding the cultivation of potatoes in this division.

2. Potatoes are very sparingly cultivated in the several districts of the division. The season for planting is in October and November. The crop is usually raised on well-drained high lands situated near a village, or sometimes on the raised banks of rivers. The lands are well manured with oil-cakes, and are irrigated every week for three months from the date of sowing. The average produce is estimated at forty pucca maunds, and the cost of cultivation is calculated at Rs. 15 per beegha.

3. *Burdwan.*—In Burdwan the only places where the potato is cultivated are thanas Gangoor and Culna, and a few villages in thanas Jehanabad and Roynah, on the right bank of the Damoodur. The Collector states that the crop has deteriorated owing to the injudicious selection of lands for the cultivation, and the use of bad seeds. He observes that at one time the cultivation was carried on in thana Gangoor on an extensive scale, but since the outbreak of the epidemic fever it has been neglected very much.

4. *Bankoora.*—The Collector of Bankoora reports that potatoes are but little cultivated in that district, and those produced are very small and of wretched quality. Mr. Larminie proposes to try at his own expense an experimental cultivation of the crop this season in the Government garden at the station, and has arranged with the Secretary to the Board of Revenue, North-Western Provinces, for a supply of English potato-seed. He promises to do his best to ensure success.

5. *Beerbhoom.*—The only place in Beerbhoom where potatoes are grown is the neighbourhood of Laikbazar, a place about five miles west of Elambazar, and on the banks of the Adjai. The kind grown is reported to yield a small, reddish, waxy tuber, which sells for half anna the kutcha seer, or three pucca seers for two annas. The crop is said to be remunerative. The soil where potato is grown is light, and is liable to inundation in high freshes. It is well adapted to the plant, and the Collector thinks that good seed-potatoes would yield a marketable root. He recommends that the experiment should be tried. The potato now grown is locally consumed, and Mr. Geoghegan has not been able to ascertain if the crop has degenerated since its introduction. There is a slight demand in Soory for inferior potatoes, which is met by importation from Calcutta, Serampore, and Patna.

6. *Midnapore.*—Potatoes are rarely seen in Midnapore. The Collector thinks that the crop may grow on high lands, and along the raised banks of rivers; and if seed can be supplied, the experiment might be tried in the model farm.

7. *Hooghly.*—The Collector of Hooghly reports that potatoes are chiefly cultivated in thanas Huripal and Biddabatty. The crop is believed to have deteriorated, and the best way of improving it would be the introduction of good seed. Mr. Pellew recommends that a store of good potato-seeds in good condition be procured at the sowing season in October and November.

8. *Howrah.*—The Magistrate reports that no potatoes are cultivated in any part of Howrah. Last year the experiment was tried in a village within thana Sankrail, but the result was unsatisfactory. He thinks that some of the zemindars would be glad to introduce the crop in the district if they get good seeds.

9. I would recommend that a few maunds of improved seed should be obtained and distributed to the Collectors of Hooghly, Burdwan, Beerbhoom, and Midnapore, for sale, by the 1st October.

PRESIDENCY DIVISION.

No. 57R.G., dated Calcutta, the 22nd July 1873.

From—Lord H. Ulick Browne, Commissioner of the Presidency Division,

To—The Secretary to the Board of Revenue, L.P.

With reference to your No. 385A, dated May 31st, 1873, on the subject of cultivation of the potato, I have the honor to report that in the 24-Pergunnahs it is carried on to a very

limited extent—only in certain villages within the jurisdiction of the sub-division of Baraset. The people of these villages obtain their seed from the Hooghly district. The potatoes produced are, however, of a very poor quality—partly owing to inferior cultivation, and partly to bad seed.

2. There is no great cultivation of potatoes in Nuddea; they are only grown in parts of the Jagoolee and Chogdah thanas. The crop is believed not to have deteriorated materially.

3. The potato is not grown in the district of Jessore; several unsuccessful attempts appear to have been made to introduce it.

4. The sub-divisional officer of Barripore, in the 24-Pergunnahs, remarks that the soil in some parts of his sub-division is adapted for the cultivation, but it appears never to have been attempted. He requests to be supplied with some good seed that he may try the experiment; and the Collector of Jessore likewise wishes to try experiments with good Darjeeling potatoes in the Sudder jail-garden, and at Narail and Bagirhat. If the seed is available, I recommend that these requests be complied with.

RAJSHAHYE DIVISION.

No. 63Ct., dated Camp Pubna, the 12th June 1873.

From—E. W. Molony, Esq., Commissioner of the Rajshahye Division,

To—The Secretary to the Board of Revenue, L.P.

In reply to your No. 385, dated 31st of May, I have the honor to state that no potato-seed can be collected for distribution in this division. In Bogra and Maldah the local officers will be glad to have a small quantity for experiment and distribution, if it should happen that any district can supply it. In such case ten maunds might be sent to the Collector of Bogra, and five maunds to the Collector of Maldah, to arrive between the 15th September and the 1st of October next.

No. 73, dated the 26th June 1873.

From—Baboo Gopaul Chunder Doss, Special Deputy Collector,

To—The Collector of Rungpore.

With reference to your letter No. 164, dated 20th instant, I beg to state that the potato is extensively cultivated in the central part of the district, round the sudder station. Besides the internal production of the district, there is also an extensive import from Darjeeling. The crop has no doubt suffered, to a certain extent, deterioration as regards its size and weight than what it was when it was first introduced in the district. The cause of deterioration, in my opinion, is attributable, not to the defect of the seed, but to its increase of cultivation. When the crop was cultivated in the district some thirty years ago, the people were prejudiced against it, and the cultivation was in proportion to the demand. Time, however, has made rapid changes in the people; and as civilization is advancing, they are also changing their taste and leaving aside their old prejudices behind them. As wealth increases, so the people are improving their diet. The demand for potato has recently been very great, and to meet this demand extensive plots of lands have been put under its cultivation. When the cultivation was small, the agriculturists were able to manure their fields and to dress them well for the reception of the seed; they could also water their fields when necessary. But the cultivation being now largely extended, the cultivators cannot procure sufficient manure to improve their land or to water their fields. In Behar and Upper Provinces the crop is continually irrigated, and the ridges or mounds of earth in which they are sown are kept in sufficient moisture to increase the growth of the crop; but in Rungpore the people do not water their fields at all, which in my opinion causes deterioration and disease in the produce.

No. 112, dated Rungpore, the 8th July 1873.

Memo. by—E. G. Glazier, Esq., Officiating Collector.

Copy forwarded to the Commissioner of the Rajshahye Division, with reference to his Circular No. 69, dated 10th June 1873. Good seed is obtained from Darjeeling, but the crop always deteriorates here, and this is no doubt partly due to a want of sufficient watering.

No. 138Ct., dated Camp Pubna, the 16th July 1873.

Memo. by—E. W. Moloney, Esq., Commissioner of the Rajshahye Division.

Copy forwarded to the Secretary to the Board of Revenue, in continuation of my letter No. 63Ct., dated the 12th July 1873. If really good seed can be procured for distribution, it would be worth-while to send a supply of (say) 20 or 30 maunds for trial in Rungpore.

No. 214, dated Berhampore, the 31st July 1873.

Memo. from—W. Wavell, Esq., Officiating Collector, Moorshedabad,

To—The Commissioner of the Rajshahye Division.

Your Circular No. 69, dated 13th ultimo.—There is little cultivation of the potato in this district, and the produce that is obtained is of a very inferior quality. It would appear that the Chains, who are the vegetable-growers of the district, are, like the majority of their fellow-countrymen, opposed to change and to the introduction of new systems and objects of cultivation; and though experiments have been made from time to time by official and non-official Europeans, they have not had the effect of causing these cultivators to take to the cultivation of the potato, as has been the case in the Rungpore district of this Division. If, however, good seeds were supplied from the hills, I think that the cultivation of this very useful article might be gradually extended; and my experience leads me to the belief that fresh seeds of hill-potatoes must be regularly procured, otherwise the potatoes by degrees become of insignificant size and indifferent flavour.

No. 691, dated Berhampore, the 4th August 1873.

Memo. by—E. W. Moloney, Esq., Commissioner of the Rajshahye Division.

Copy of paragraph 1 forwarded to the Secretary to the Board of Revenue, in continuation of this office No. 63Ct., dated 12th July last.

No. 112, dated Beauleah, the 18th August 1873.

From—W. H. D'Oyly, Esq., Collector of Rajshahye,

To—The Commissioner of the Rajshahye Division.

With reference to your Memorandum No. 69 (Circular), dated 10th June last, and its enclosures, I have the honor to report as follows :—

1. It appears that potatoes are cultivated only in parts of the Bandaikara thana, near the Jaboona river. This river is navigable throughout the year. I am informed that the soil is very stiff and dark-coloured, consisting of clay with a slight admixture of reddish sand. The produce is indifferent, the potatoes being small and inferior in quality.

2. I am told that they are cultivated continuously year after year on the same lands. Jeiffray says: "Wherever grown, they will do little good if repeatedly planted on the same spot of ground; they require a change every year."—(See "Balfour's Cyclopœdia of India," page 1500.)

I hear that potatoes are sown sometimes in June and July and the crop gathered in the end of December, and sometimes they are sown in October–November and the crop gathered in February–March. The latter is generally the best crop. The yield is about from seven to ten maunds per beegha (of 1,600 square yards); the soil is dug with spades and afterwards ploughed four times; cowdung is used as manure. Care seems to be taken to sow the slices far enough apart on ridges, and when the plant comes up the stalks are earthed up. It does not appear, however, that any plan is resorted to to resist the attacks of white ants and other insects, nor is the potato-ground changed yearly, as it should be. If, when slicing potatoes for sowing, the slices are dipped in wood-ashes and allowed to dry before sowing; and if a clove of garlic is put in with each slice, the attacks of white ants and grubs will be to some extent resisted.—(See "Balfour's Cyclopœdia," page 1501.)

3. As regards deterioration, I believe that potatoes will always deteriorate after two or three seasons in the plains under the most favorable circumstances; but careful drainage and change of ground will retard the deterioration, and will ensure better crops for the first few seasons even.

No. 770, dated Berhampore, the 24th August 1873.

Memo. by—E. W. MOLONY, Esq., Commissioner of the Rajshahye Division.

COPY forwarded to the Secretary to the Board of Revenue, in continuation of this Office No. 63Ct., dated 12th July last.

COOCH BEHAR DIVISION.

No. 2395, dated Julpigoree, the 23rd July 1873.

From—C. T. METCALFE, Esq., Offg. Commissioner of the Cooch Behar Division,

To—The Secretary to the Board of Revenue, L.P.

I HAVE the honor to acknowledge receipt of your letter No. 385A, dated 31st May last, and annexure, requiring a report as to whether potatoes are cultivated in the districts of this division; and if so, whether the crop has deteriorated, and also on the measures I would propose for their improvement.

2. In reply I have the honor to state that in both the districts of Darjeeling and Julpigoree potatoes are cultivated. In the former district there are several varieties cultivated. As to the general deterioration of this crop, there are differences of opinion. Some hold that the potato is smaller and the crops less abundant, others—and among them the Deputy Commissioner—are of opinion that the real state of the case is that the demand for superior potatoes is much greater than it was, both amongst Natives and Europeans; and that consequently inferior varieties, which were never brought to European tables, now force their way into the market. As a proof that good potatoes are still grown in Darjeeling, the Deputy Commissioner states that a few days ago he received a letter from the First Assistant Superintendent of the Andamans, saying that he was much struck with the quality of some Darjeeling potatoes seen by him at Bankipore, and asked for some seed. The Deputy Commissioner has also been asked by the Chief Commissioner of British Burmah for some Darjeeling seed.

3. The Deputy Commissioner does not quite agree with the pessimist view of the deterioration of potatoes in his district, but at the same time he admits that we should do all we can to keep up the standard. He has asked to be supplied with some ten maunds of seed from Mr. Buck, of the Western Board of Revenue, who has offered Government some seed which he has raised from imported potatoes. The people are anxious to obtain good seed. It is proposed to distribute the ten maunds to the best advantage.

4. Throughout the Julpigoree district a very small and poor kind of potato is cultivated, and no deterioration has been noticed. The soil of the district seems especially adapted for potato-growing, being a fine sandy loam; and some very fine specimens have been grown in private gardens in the station. The Deputy Commissioner is of opinion that experiments with good seed is worth trying in his district, and in this opinion I concur.

5. I would recommend that fifteen maunds of seed be sent for distribution to the Darjeeling and Julpigoree districts as an experiment.

6. No potatoes are cultivated in the Gowalpara district.

7. If English kidney-potatoes could be obtained, it would be worth-while experimenting with them in the Darjeeling Hills. An excellent potato is also exported from Bhootan and sold at Buna; and as there is an increasing demand, I trust it may give an impetus to the cultivation.

DACCA DIVISION.

No. 354, dated Dacca, the 21st July 1873.

From—A. ABERCROMBIE, Esq., Offg. Commissioner of the Dacca Division,

To—The Secretary to the Board of Revenue, L.P.

WITH reference to your letter No. 385A, dated 31st May last, I have the honor to report on the cultivation of potatoes in this division.

2. *Dacca.*—The Collector of Dacca reports that potatoes are grown to a small extent in his district. Their cultivation is almost entirely carried on on both banks of the Burigunga, at Kolattia and Bukurta; and in this tract their cultivation is very general. That in his opinion the potato as grown in the district has rather improved than otherwise; the cultivators are well aware of the necessity for good seed, and annually import it from Cherrapoonjee. That during the Lushai Expedition six boats, which were sent up for seed, were seized

for carrying stores, and the result was that in 1871 only a small amount was planted, and this year again the amount was smaller than usual. That, under these circumstances, some assistance in the way of seed would do good recompense for the loss suffered in 1871.

3. *Furreedpore.*—In this district also potatoes are grown to a very small extent, but the Collector states that the cultivation will never be general; nor does he think that any encouragement would tend to increase it, as the plant could never become indigenous, and the culture is understood only by very few gardeners in the service of Europeans. That the soil is light, friable, and sandy, and therefore sufficiently suited for the purpose.

4. In Backergunge, Mymensing, and Cachar, potatoes are not cultivated. The Collector of Mymensing states that the climate of his district is not well suited to the plant, as he himself once tried to raise them in the sudder station, but without success; that he should like, however, to make another experiment on the model farm of Jamalpore, for which he wishes to be supplied in September next with a small quantity of good seed, say enough for two or three acres of land.

5. The Deputy Commissioner of Cachar says that in last cold weather he sowed some potatoes in his own garden; they were the ordinary Khasi Hill potatoes, and were tolerably successful. That his gardener told him that about forty years ago Captain Fisher, the Superintendent, was very successful in the cultivation of potatoes in the sudder station; they were much bigger than any he has seen from the Khasi Hills. The Deputy Commissioner wishes to have some good seed to distribute to the hillmen, both in the north and the Lushai Hills.

6. Sylhet is the only district where the cultivation of the crop is carried on in a larger scale than the other districts of the division, but the Collector says it has deteriorated very much. He wishes to have some seed for the purposes of improving the cultivation of the plant.

7. Last year I heard that there were some excellent seed-potatoes from Australia to be had in Calcutta; and he thinks if another opportunity should offer, it would be a very good plan to secure some of it for Dacca, Sylhet, Cachar, and Mymensing.

8. This source of supply being altogether uncertain, I would suggest that the Deputy Commissioner at Shillong should be directed to give his assistance to any district officer in obtaining good seed from the hills, as the best potatoes grow some distance in from the foot of the hills, and the potatoes which can be bought at Chuttuck or Bholagunge are a very inferior article.

CHITTAGONG DIVISION.

No. 262, dated Camp Comillah, the 28th August 1873.

From—F. C. Fowle, Esq., Offg. Commissioner of the Chittagong Division,

To—The Secretary to the Board of Revenue, L.P.

With reference to your letter No. 385A, dated the 31st May last, calling for a report on potato cultivation in the districts of the Chittagong Division, I have the honor to state as follows.

2. Of the three districts of this division, two, namely Tipperah and Noakholly, do not produce any potatoes at all; the third, Chittagong, is not a potato-growing district either. The Collector of Chittagong says :—"What potatoes are produced are small and of very inferior flavour; the crop is not a staple one, or even a common one, and there is no reason to suppose that there has been any deterioration."

3. The Collector of Chittagong has received many applications for potato-seed, but suggests that should any be sent to him, the applicants should be required to pay for it instead of receiving it gratuitously.

4. In the district of Tipperah growing potatoes has been often tried, but always resulted in a failure, and further attempts have been long since given up. The soil is not at all adapted for them. A maund of seed has often, I am told, not produced half that quantity of fruit, and that small and useless. The same may be said of Noakholly, and, from what the Collector writes, almost similar results obtain at Chittagong.

PATNA DIVISION.

No. 662R, dated Bankipore, the 11th September 1873.

From—S. C. Bayley, Esq., Offg. Commissioner of the Patna Division,

To—The Secretary to the Board of Revenue, L.P.

I have the honor to acknowledge the receipt of your letter No. 385A of the 31st May last, calling for a report on the cultivation of potatoes in this division.

2. In reply I beg to state that I consulted the Collectors of this division on the subject, and the following is a brief abstract of their replies.

3. *Patna.*—The Collector of Patna states that the potato is extensively cultivated in all parts of his district except in the Behar sub-division, where it is very rarely cultivated, the soil being considered quite unsuited for the purpose Those mostly grown about Manair and Barh are of a small variety; while the Darjeeling potatoes, and several other larger varieties, are extensively and successfully grown in the sudder sub-division and about Dinapore. There has been no deterioration in the crops whatever, and good seed* is always procurable in this district.

Imported, I believe.

4. *Gya.*—Potatoes are not grown to any considerable extent in Gya, excepting in the immediate vicinity of towns; they are not grown as an article of trade or export, but only in small quantities for home consumption, and the seed is seldom changed. Sometimes seed is procured from Patna, but never from Darjeeling. The potatoes are exceedingly small and waxy, and appear to have greatly deteriorated, though the cultivators do not admit this, as they seldom give out the truth, always mistrusting the motives of Government in making such statistical inquiries. Mr. Palmer proposes to ameliorate the condition of the crop—*first*, by obtaining good seed for distribution amongst the Koirees and seeing that it is planted, the price of the seed to be adjusted when the crop is taken up; and, *secondly*, by obtaining good seed from Madras, Bombay, Darjeeling, and Mussouri. He then goes on to say:—"We have much to learn from the native agriculturists; none have denied the efficiency of new and good seed, but there is a difficulty in procuring it. The outlay to them is heavy, and, not being assured of the results, their natural *insouciance* overcomes their desire of increased gain, and they are content with a profit of 50 per cent. without any trouble save weeding and watering.

"Should you be pleased to indent for this seed, no time should be lost; and, assuming that it requires ten maunds of such seed for each beegha, I would beg to be supplied with ten maunds of each sort."

5. *Shahabad.*—In Shahabad the potato is grown to some extent in the sudder sub-division, Buxar, and Bhubooah, but very little in Sasseram. The cultivators generally secure the best seed they can from Ghazeepore, Bettiah, and Patna, with a view to growing large potatoes. The common potatoes grown in the villages are to the last degree tasteless and waxy. The crop in the sudder sub-division is said not to have deteriorated in any marked way, but it would nevertheless be of great advantage if seed of a better quality than the present could be obtained and introduced in this district. The Deputy Collector of Buxar cultivated hill-potatoes in his own garden, and they are said to have yielded a crop in no way inferior to the parent stock. The soil of this sub-division is said to be singularly uncongenial to the potato. The same remark applies to Sasseram. Mr. Eyre proposes to see the crop tried on the Kymore plateau, and I have sanctioned his suggestion. The cost of the experiment can be met from the Government Estates' Improvement Fund, or, if this is not available, a special grant can be made for the purpose. Mr. Alexander proposes for this purpose to try experimental sowing of the Darjeeling seed in the Government estate of Rohat, which is on the Kymore plateau, and also in the jail-garden at Arrah.

6. *Tirhoot.*—In Tirhoot the cultivation of the potato is more extensively carried on in Hajeepore and Tajpore than in any other parts of the district, where the cultivation is very limited. The quality of the potato is said to have deteriorated, and the deterioration is attributed to want of good seed. The cultivation is also reported to have fallen off to a certain extent. Mr. Halliday consulted many European gentlemen who take an interest in the subject and make experiments with the crop; every one is of opinion that Darjeeling seed should be obtained for the improvement of the crop. At present good seed is procured from Patna and Bettiah.

7. *Sarun.*—The cultivation of the potato is carried on to a tolerable extent in the Sarun district. The cultivators annually import new seed from Patna and Bettiah. The potato is very small in size and of inferior quality, but the outturn is often very large. The crop has deteriorated, which the Collector attributes to the present system of cultivation, the object of the grower being to obtain the largest possible outturn, irrespective of the quality of the crop. Mr. Samuel, the Deputy Collector of Bettiah, mentions other causes of the deterioration of the crop, which are these:—

(1) Lands suitable for potatoes are generally taken up for poppy.
(2) The cost and trouble of cultivation are more than the majority of natives care to undertake.
(3) The rent of the land (which ranges from Rs. 8 to Rs. 20 a beegha) is usually at once raised by the zemindars when potatoes are sown.
(4) The crop is very likely to suffer from blight.

8. If better seed were distributed amongst the natives, the quality of the crop would certainly improve; but an amendment in the system of cultivation, the Collector says, is indispensably necessary for the amelioration of the crop. Mr. Drummond therefore proposes to have small experimental gardens in the station, to which natives would have access in order to learn the improved system of cultivation, and recommends that about ten maunds of

seed-potato of different kinds and best quality be supplied for distribution amongst some of the principal European and Native gentlemen for experimental cultivation. The produce of the crop, he says, should be kept for seed for redistribution in the following year, and by this means it would be easily found out whether the crop deteriorates or not, and what kind of seed is suited to the soil.

9. *Chumparun.*—The potato generally grown in Chumparun is of a red colour, and is small in size. The cultivation of this plant is said to be deteriorating. No good potato is grown from indigenous seed. Good seed is said to be imported from Nepal, Darjeeling, and Hajeepore, and the potatoes produced therefrom are very fine in the first year, but deteriorate in the second; they become watery and flavourless, and yield badly. Mr. Gibbon, Manager of the Bettiah estates, reports that he has tried all the above kinds, but has failed in all. He now imports Nepal seed every year, and grows excellent potatoes, but the expense of importing the seed is, he says, too much for a cultivator to afford to pay it.

10. What is called Bettiah seed by the Collectors of Shahabad, Tirhoot, and Sarun, is really, the Commissioner apprehends, Nepal seed.

11. Two points come out from the above report:—(1) That the potato grows well in these districts, and can be made remunerative; (2) that without frequent introduction of a better kind of seed the crop deteriorates.

12. The two best sources of supply for seed are Darjeeling and Nepal, but the question is how the requisite communication is to be established between the potato-growers in the hills and the cultivators in the plains. I think model farms might do a good deal in that way, and I believe it might be made a really paying business to establish one or two agencies for collection and distribution of good hill-seed. The cultivation is almost entirely in the hands of Koirees and other good cultivators, as it will not pay the lazier classes; and these men are well aware of the necessity of a frequent change of seed, and would pay for the best seed if they knew where they could be sure of getting it.

13. I look with great interest to the experiment of introducing the potato on the Kymore plateau. If it succeeds—and I think it should succeed—it will be an immense boon to the badly-fed tribes that live there.

BHAGULPORE DIVISION.

No. 286, dated Bhagulpore, the 11th August 1873.

From—G. N. Barlow, Esq., c.s.i., Offg. Commissioner of the Bhagulpore Division,

To—The Secretary to the Board of Revenue, L.P.

In answer to your letter No. 385A of the 31st May last, I have the honor to submit herewith the information called for with regard to the cultivation of the potato.

2. Potatoes are grown in all the districts of this division, more or less, except in the Sonthal Pergunnahs, with seed generally imported from other districts. Seed from Darjeeling and Patna is mostly in use, but it deteriorates everywhere. From the first year's sowing of seed imported a fair crop is obtained, but the potatoes will not keep well. The first year's sowing of the acclimatized seed when tried gives the best return, the potato being of a large size and of good flavour, and capable of being kept. After this, however, it rapidly degenerates.

3. The Collector of Purneah thinks potatoes can never be successfully grown in his district, the soil being too cold and damp; but the Commissioner does not think that coldness and dampness affect the cultivation to any extent. The deterioration is, the Commissioner believes, owing partly to neglected cultivation, or I may say to ignorance on the part of the cultivators how to deal with the cultivation properly, and partly to the poverty of the soil and to want of manure in the land.

4. The Collector of Bhagulpore has furnished some details regarding potatoes in his district, and I beg to annex a copy of his letter, No. 713 of the 21st ultimo, containing them. I should be very glad if it be thought proper to accede to his proposal to send up some seed (say the Cherapoonjee potato) for experiment, to have a sufficient quantity to admit of experiment on a small scale being made in each of the districts of Monghyr and Purneah.

No. 713, dated Bhagulpore, the 21st July 1873.

From—V. T. Taylor, Esq., Collector of Bhagulpore,

To—The Commissioner of the Bhagulpore Division.

I have the honor to acknowledge the receipt of your memorandum No. 148 of the 12th June, forwarding copy of Board's memorandum No. 385A of the 31st May, asking whether potatoes are cultivated in this district; whether, if so, the crop has deteriorated, and what measures I would propose for its improvement: and in reply to report as follows.

2. Potatoes are, I may say, very extensively grown, and the crop is a remarkably paying one.

3. The whole country from Sultangunge to Colgong is in the season under potatoes, and the crop is sown immediately at the close of the rains. A large quantity of these potatoes is exported by rail to Calcutta, and they are fairly good. The seed is procured fresh annually from Patna or some district near; then it is brought down in boats and at once bought up.

4. From my own experience and observation the potatoes are, as a rule, dug up much too soon, and the *quality* would be very much better were the tubers allowed to ripen before being dug up; but the great object with the cultivators is to get their crop early in the market, to obtain the high price then realizable. I believe the greatest exportation takes place by rail from Colgong, where there is one remarkable piece of ground annually sown with potatoes, for which Rs. 13 a beegha is paid. Castor-oil seed is planted with the potatoes, so that the land must be very paying.

5. It is impossible to say that these potatoes are deteriorating owing to the seed being fresh every year; but from inquiry I believe the cultivators would be very glad to get hold of a really good potato, Bhagulpore appearing very well suited to this crop.

6. To the south the soil is not favorable, and potatoes are not grown.

7. To the north, in the Muddehpoora sub-division, but little land is under potato cultivation; but the potato, the little that there is, is of one kind, and very small—locally called "jharri:" and here the seed is preserved from year to year, and is of course deteriorating. The cultivators would, I am informed, readily take a good kind if they could get it; but I doubt a good class of potato ever being very successfully grown about that portion of the district.

8. In the Soopool sub-division the case is different, and in the Naradiggur pergunnah especially, as well as in pergunnahs Dhupper and Harawuth, enormous crops are grown, and the crop is a very paying one. The potato grown, however, is almost entirely a small red one,—not only to look at outside, but the whole potato is tinged with red. The quality to a European idea is very bad, but the natives appear very fond of them.

9. The quality is doubtless rapidly deteriorating; and if good seed be supplied *at a moderate rate*—and, considering the distance from head-quarters, the cost of carriage must be considerable—the ryots would readily take advantage of it.

10. The remedy is only to be met with in the supply of new and good seed on favorable terms to the cultivators, and the seed should be in Bhagulpore by the last week in September. The Collector would propose that a sufficient supply be sent to be distributed to some of the growers at Sultangunge, Bhagulpore, and Colgong, and also to the cultivators in Naradiggur; and, should the experiment be successful, I have no doubt in the next year similar seed will be in great demand.

11. It is difficult to suggest the kind of potato that should be sent; this could only be discovered by experience. When I was at Rungpore I made an experiment with Darjeeling potatoes in the jail-garden there, but the crop, notwithstanding every care, was a complete failure. Now here annually I get Cheerapoonjee seed, or what is sent me as such, for my own garden, and find it succeeds admirably; and if this kind could be sent in sufficient quantities, I think a considerable improvement would be effected, and the cultivators might get a higher price in Calcutta than they do even now.

12. I am told by a man from Hooghly that even now potatoes from here are fetching Rs. 5 a maund in Hooghly, but he cannot certify that the potatoes were Bhagulpore potatoes.

ORISSA DIVISION.

No. 219, dated Cuttack, the 1st July 1873.

From—T. E. Ravenshaw, Esq., Commissioner of the Orissa Division,

To—The Secretary to the Board of Revenue, L.P.

In reply to your letter No. 385A of 31st May 1873, I have the honor to state that the Collector of Cuttack reports that potatoes have been frequently tried, and failed. The Collector, Mr. Irwin, attempted to raise some last season, with no success.

2. I have myself repeatedly tried to raise potatoes: I have used Calcutta or Bengal, Darjeeling, Cherapoonjee, Bombay, and Australian varieties; I have bestowed a good deal of care on the experiments, which have been invariable, and almost total, failures. Every variety of soil has been tried, with and without manure.

3. In Balasore the Collector reports that potatoes are not grown, and are not used as a vegetable by the population. He believes the best sorts must degenerate, and that to keep up the quality seed must be annually imported.

4. The Pooree Collector thinks the soil about Pooree, which is light and sandy, would grow good potatoes; but, so far as he can ascertain, they have not been tried, and are not grown

by the people or used as a vegetable. The Collector proposes to make a trial, if seed be supplied. The Khoordah Deputy Collector, Mr. W. C. Taylor, appears to have been more successful. I give below paragraphs 2 to 8 of his report:—"No potatoes have ever been grown in Khoordah until last year, when I made a small experiment and found that the tuber thrives exceedingly well in some of the Khoordah soils. I tried both the native Orissa seed and Calcutta potatoes, and both did well. This year I wish to try an experiment on a more extended scale; I shall be very glad to get seeds of different kinds. The potatoes for seed should reach Khoordah in all September, as they should be planted out early in October. I should like to try the following sorts:—(1) Darjeeling potatoes; (2) Sylhet potatoes; (3) Bangalore potatoes; (4) the white mealy potatoes grown near Calcutta, called Bombay potatoes—not the yellow, waxy sort, which is a very inferior and diseased variety; any English or Australian varieties that can be obtained. Ten or fifteen seers of each sort would be a sufficient quantity for a good experiment."

5. There is generally a great demand for potatoes among European residents in all Orissa districts; they are very difficult to get, and very expensive, being imported from Calcutta or Madras: and I have no doubt every officer will too gladly aid in carrying out any experiments either in his own or in the jail-gardens.

6. If a few practical instructions be given as to time of planting, soil, &c., and a supply of seed be sent to each District Collector, there will be no want of volunteers to carry out the experiment.

CHOTA NAGPORE DIVISION.

No. 92, dated the 12th August 1873.

From—T. F. Peppe, Esq., Sub-Deputy Opium Agent, Chota Nagpore,

To—H. L. Oliphant, Esq., Deputy Commissioner of Lohardugga.

In reply to your memorandum No. 1313, dated 11th June last, I would beg to state that this district is by no means a potato district, and this is owing to several causes.

2. The potato crop must be irrigated in this district, and hence the principal cultivators are the Koirees, who cultivate for the market and local consumption, for there is no export of this vegetable.

3. Of late years there has been a steady increase of the cultivation, and as steady a decrease in the value of the crop, caused by the increased production. I attribute the increased production to the spread of the cultivation amongst the Kols, partly brought about by the introduction of the poppy cultivation, which has made the people generally more familiar with this kind of cultivation.

4. I have estimated that there are about 2,000 maunds only produced in this district by the Koirees alone; that there are about 400 families engaged in this cultivation along with other vegetables.

5. The Koirees emigrated to this district about seventy years ago, and since that time they have never had a change of seed. The consequence is that blight is very common, and it is extremely difficult to get seed free from a tendency to this disease; and at the best the variety cultivated gives the most wretched tubers, although in other respects very superior to that grown in the plains about Patna, Gya, and Hajeepore, in flavour and dryness.

6. The red soil, so common in most parts of this district, is so porous and friable as to be well suited for potatoes; but it is poor, and without manuring would never give a good crop. With good seed and the ground well manured, it would give excellent crops of a good quality of potatoes.

7. The Koirees gladly purchase small quantities of good seed if it could be supplied to them at (say) Rs. 5 per maund in Ranchee; and I would recommend that ten maunds of the potatoes known in Calcutta as the Madras potato be procured and distributed at that rate to the cultivators. If it would assist the experiment, I would undertake to distribute this quantity amongst the cultivators and collect the price from them.

8. The experiment would not therefore cost much; probably Rs. 50 would cover the whole expense to Government.

No. 129T, dated Camp Hazareebagh, the 3rd September 1873.

From—Colonel E. T. Dalton, C.S.I., Commissioner of the Chota Nagpore Division,

To—J. Geoghegan, Esq., Offg. Secy. to the Board of Revenue, L.P.

In reply to your office letter No. 385A of the 31st May last, I have the honor to report that potatoes have not been grown in this division with any permanent success. A small

kind of potato is grown by Koirees in the Hazareebagh and Lohardugga districts; and though efforts have been made to introduce a better kind of seed, the result is only an improved tuber for two seasons or so: it then deteriorates, and the produce dwindles to the ordinary size of the potato of the district.

2. Captain Burnell, an officer of the Commissariat Department, tried many experiments at Hazareebagh with a view of growing or introducing a potato suited to the requirements of the European soldiers, but he did not succeed in permanently improving the local produce.

3. In the districts named above, the local produce has undoubtedly greatly increased within the last few years, and goes on increasing. It consists of two kinds of potatoes,—white and red, but never attaining a respectable size. The unimproved soil is not sufficiently rich for a stronger growth, but, no doubt, this might be remedied by heavy manuring.

4. Mr. Forbes, Officiating Assistant Commissioner in charge of Palamow, asks for permission to obtain four maunds of seed-potatoes from Patna, to give out to cultivators. I append a copy of his letter.* He asks for sanction to purchase the seed before the close of the current month, and this will, I hope, be accorded. I think the soil in some parts of Palamow is better suited to the growth of potatoes than that of other parts of the div[illegible] Many cereals and pulses and tubers grow well in Palamow which do not succeed in Loh[illegible]gga.

* No. 490, dated 19th August 1873.

5. Mr. T. F Peppe, Sub-Deputy Opium Agent, offers to undertake to distribute ten maunds of potato-seed amongst the Koirees if authorized to do so. He says they would gladly purchase it at Rs. 5 a maund, and he proposes th[illegible] called in Calcutta "the Madras potato." Mr. Peppe has peculiar opportunities of selecting the best cultivators, and of seeing that the cultivation is properly attended to. I strongly recommend that his proposal be accepted and ten maunds be procured and sent up for him. I enclose copy of his letter.†

† No. 92, dated 12th August 1873.

No. 490, dated Daltongunge, the 19th August 1873.

From—L. R. Forbes, Esq., Offg. Assistant Commissioner of Palamow,

To—H. L. Oliphant, Esq., Deputy Commissioner of Lohardugga.

Referring to your memorandum No. 1313, dated 11th June last, forwarding correspondence named in the margin.

No. 385A, from Board of Revenue to Commissioner, Chota Nagpore, dated 31st May 1873, forwarding extract (para. 3) from Government Order No. 717, dated 16th April 1873, calling for report.

2. After a careful inquiry into this subject, I find that the total area of potato cultivation in the sub-district, *i.e.* in Palamow, Jupla, and Belounja, amounts to not more than 300 beeghas, standard measurement. The cultivation is confined to Koonjeras, Cheras, and a few Koirees.

3. There are three kinds of potatoes grown, known severally as "ferunghia," or large white; "dhenga," or large red; and "thalaria," or small red. The whole of the seed is procured from Patna,—sometimes by boat up the Sone to Budughat, in Jupla, but more frequently, especially for Palamow requirements, the seed is brought in baskets through Gya.

4. Of the three kinds mentioned above, the most commonly grown are the "dhenga" and "thalaria," *i.e.* the two red kinds. I myself have never seen any large white Palamow grown potato. The potatoes grown here are decidedly of an inferior quality. The large red kind, "dhenga," are seldom seen larger than a duck's egg, and the smaller kind are little bigger than marbles, and the produce rarely exceeds 18 to 22 maunds per Bengal standard beegha. I cannot find that this inferiority of crops is due to the influence either of soil or climate, but that it must be ascribed to want of care in the selection of seed—inferior seed, I have no doubt, being purchased for cheapness' sake—and to want of proper care in cultivation.

5. As far as I can judge from my own experience, I should say the soil and climate of Palamow is admirably suited for the raising of good potato crops; and I have no doubt the people are exceedingly fond of it, and would gladly hail an improvement in quality. I have spoken to several of the cultivators on the subject of improvement, and they have expressed themselves willing to experiment with a good class of potato-seed if supplied to them.

6. I would therefore suggest that I may be permitted to purchase for distribution four maunds of the best seed I can procure, either in Patna or elsewhere. The seed should be given free of cost, on condition that the cultivator keeps a diary giving a detailed history of the cultivation, and submits it with a fair sample of the produce. I would add that sanction should reach in time to enable me to get the seed here by the end of September at latest.

No. 70B.T., dated Shillong, the 2nd August 1873.

From—Colonel Henry Hopkinson, Governor-General's Agent, North-Eastern Frontier, and Commissioner of Assam,

To—The Secretary to the Board of Revenue, L.P.

I have the honor to acknowledge the receipt of your letter No. 385A of the 31st May 1873, and in reply to state that there are no potatoes grown in this division, except in the political charge of the Khasi Hills, where the esculent is very largely cultivated, and regarding which district I submit copy of a report* from the Deputy Commissioner, with whom I concur in thinking that the potato has not deteriorated. Government has, however, already promised a supply of seed for these hills and the Deputy Commissioner considers that this measure will be sufficient for the improvement of the potato.

* No. 848 of the 30th July 1873.

No. 848, dated Shillong, the 30th July 1873.

From—Colonel H. S. Bivar, Deputy Commissioner of the Khasi and Jynteah Hills,

To—The Personal Assistant to the Governor-General's Agent, North-Eastern Frontier, and Commissioner of Assam.

In reply to your letter No. 644D.T., of the 25th July, calling for a report as to whether the potato in the Khasi Hills has or has not deteriorated, I have the honor to notice as follows.

2. Though I have heard it stated that the potato has deteriorated, and I think it is very probable that since the distribution of the last renewal of the seed in 1860 there has been a falling off, yet I would notice that from my own observation, and from inquiries I have made from the cultivators, I am not prepared to state that any serious deterioration has taken place.

3. My connection with these Hills dates from March 1864, and from that time, although according to the season having been more or less favorable the quality of the potato has varied, yet on the whole I have not observed any marked difference.

4. Again, the cultivators whom I have questioned this year have informed me that their crops have been good and plentiful; and I would add that the cultivation of the esculent is on the increase, that the produce is higher in value, and that the export trade has largely augmented.

5. I had recently occasion to show the Governor-General's Agent, North-Eastern Frontier, a sample of potatoes taken from the states of Cherra and Myllin, and on examination they were found to be of good quality.

6. Under circumstances explained, I would notice that I consider that it would be beneficial to renew the stock of seed; and, as reported in my letter No. 550 of 11th June 1873, application has been made to Government to sanction an outlay to secure such an object; and, further, under orders of His Honor the Lieutenant-Governor of Bengal, a supply of English potato-seed from the North-Western Provinces is to be sent me in October.

W. H. D'C.—150—114-7